

REMARKS

Claims 1-20 are currently pending.

Claims 7, 9, 11-13 and 18-20 have been withdrawn from consideration.

Claims 1- 6, 8, 9 and 14 -17 are rejected under 35 U.S.C. 102 (b) as anticipated by or, in the alternative under U.S.C. § 103 (a) as obvious over Hansen et al. U.S Patent No. 5,589,256.

Claim 10 is rejected under 103 (a) as being unpatentable over the same reference.

The Rejection of Claims 1-6, 8, 9 and 14-17, Under U.S.C § 102(b)/103 (a)

The rejection of Claims 1-6, 8, 9, and 14-17 under U.S.C § 102(b) as being anticipated by Hansen et al. or, in the alternative, under U.S.C § 103 (a) is respectfully traversed.

For a prima facie case of anticipation a single reference must teach each and every element of the claimed invention, the elements must be arranged as in the claim, and be expressly or inherently described as interpreted by one of ordinary skill in the art.

Claim1 cites “ An absorbent product comprising *cellulosic fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄- C₁₂ polyol wherein the individualized intrafiber crosslinked cellulosic fibers are characterized by a Whiteness Index(WI_{CDM-L}), greater than about 69.0*”.

The Hansen et al. reference discloses polymeric and non-polymeric binders for fibers and the use of these binders for binding particles to fibers. The fibers are then densified by external application of pressure, column 1, lines 6 -14.

One problem with the use of superabsorbent particles that are used in absorbent products is that the superabsorbent can be physically dislodged from the cellulosic fibers of an absorbent product which reduces the absorbency of the product and the effectiveness of the superabsorbent material, column 1, lines 29 -34. The Hansen et al. reference provides an improved method of binding particulates such as superabsorbent particles to fibers, column 2, lines 31 -37. Hansen et al. achieve this

by providing fibers with hydrogen bonding functional sites and applying a binder to the fibers with a functional group that forms a hydrogen bond with the fibers and a functional group that is capable of forming a hydrogen bond or coordinate covalent bond with particles that have a hydrogen bonding or coordinate covalent bonding functionality, column 2, lines 57- 64.

The Examiner has not established a prima facie case of anticipation or obviousness. Contrary to the Examiner's statements, the Hansen et al. reference does not disclose an absorbent product comprising cellulose fibers reacted with an effective amount of crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol and does not disclose *individualized intrafiber crosslinked cellulosic* fibers with a Whiteness Index greater than about 69.0. The Examiner cites column 3, lines 42-45, 62, column 23, lines 54 – 56, column 35, lines 35 and 36 as support for the rejection.

Applicants respectfully disagree with the Examiner's rejection. Column 3, lines 42-45 cites polymeric binders which are not C₄-C₁₂ polyols. Line 62 only cites binders which include, among others, polyols in a general sense and are not specific to C₄-C₁₂ polyols. The column 23, lines 54 - 56 reference only refers to subsequent examples where polymeric binders are used to attach superabsorbent particles to southern bleached kraft pulp. There is absolutely no reference to crosslinking of cellulose fibers in the presence of polyols to yield the fiber color properties of the instant invention. Column 35, lines 35 and 36 refers to thermoplastic auxiliary binders that contain a hydrogen bonding functionality that hydrogen bonds the particles to the fibers and ethylene vinyl acetate and polyvinylacetate are examples of such binders, column 35, lines 16 – 21.

Applicants submit the rejection is improper. First, the fibers taught by Hansen et al. are not cellulose fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol. Second, the fibers are not *intrafiber crosslinked cellulosic fibers* and the fibers do not have a Whiteness Index of greater than 69.

Applicants submit the reference has nothing to do with intrafiber crosslinked cellulosic fibers which have a Whiteness Index of at least 69.0,

rather, the reference relates to the binding of particle to fibers through hydrogen bonds and coordinate covalent bonds. Furthermore, the product structure or composition of the reference is not even closely identical to that of the claims of the instant invention since the structure or composition in the reference is different from the instant invention and thus cannot have the inherent properties of the invention. The instant invention teaches crosslinking of cellulose fibers with a crosslinking agent in the presence of polyols to produced individualized intrafiber crosslinked cellulose fibers, the Hansen et al. reference discloses the binding of particles to fibers through hydrogen bonds and coordinate covalent bonds. It is only when the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes that a prima facie case of either anticipation or obviousness has been established, (MPEP 2112.01). As stated earlier, the reference does not disclose cellulose fibers reacted with an effective amount of crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol and does not disclose *individualized intrafiber crosslinked cellulosic* fibers with a Whiteness Index greater than about 69.0.

Since every element of the claim is not disclosed in the Hansen et al. reference, the Examiner has not established a prima facie case of anticipation. Neither has the Examiner established obviousness since the reference does not teach, disclose or suggest all the elements of the claimed invention. Furthermore, the argument of inherent properties cannot stand since there is no supporting teaching in the prior art of crosslinking cellulose fibers in the presence of polyols, rather it teaches binding of particles with binders and therefore the Examiner's rejection is improper. Withdrawal of the rejection and allowance of the claim is respectfully requested.

Claims 2-6, 8, 9 and 14-17 depend on Claim 1. Since the independent claim is nonobvious under 35 U.S.C. 103 (b) then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

With regard to Claim 2, the reference does not teach individualized intrafiber crosslinked cellulose fibers as indicated by the Examiner and the fibers do not have an L value greater than about 94.5. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 3, the reference does not teach individualized intrafiber crosslinked cellulose fibers as indicated by the Examiner and the fibers do not have an a value greater than about -1.55 and less than about -0.60. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 4, the reference does not teach individualized intrafiber crosslinked cellulose fibers as indicated by the Examiner and the fibers do not have a b value less than about 8.5. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claims 5, 6 and 8, column 35, the lines 35 and 36 reference by the Examiner refer to ethylene vinyl alcohol and polyvinyl acetate which, as mentioned earlier, refer to thermoplastic auxiliary binders that contain a hydrogen bonding functionality that hydrogen bond the particles to the fibers. Ethylene vinyl acetate and polyvinylacetate are examples of such binders, column 35, lines 16 – 21. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 9, Applicants submit the Examiner has taken the reference to pentaerythritol out of context. The reference relates to suitable non - polymeric binders for binding particles to fibers, column 3, lines 42 and 43. The reference does not teach crosslinking of cellulose fibers in the presence of a polyol rather the reference relates to binding of particles to fibers through hydrogen or coordinate covalent bonds. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 14 the reference does not teach cellulose fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C_4 - C_{12} polyol where the individualized intrafiber crosslinked cellulose fibers are characterized by a Whiteness Index greater

than about 69.0 and which have brightness greater than 79.0 % ISO brightness. The Examiner has not established a prima facie case of either anticipation or obviousness since the reference does not disclose all the limitations of the claim. Specifically, the reference does not disclose an absorbent product comprising fibers reacted with a crosslinking agent in the presence of a crosslinking agent and a C₄-C₁₂ polyol and individualized intrafiber crosslinked cellulose fibers with a Whiteness Index greater than about 69.0 and an ISO brightness greater than about 79.0. Furthermore, the Examiner has not set forth the proposed modification of the applied reference necessary to arrive at the claimed invention. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 15 the reference does not teach an absorbent article comprising cellulosic fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol wherein the intrafiber crosslinked cellulosic fibers are characterized by a Whiteness Index greater than about 69.0 and further comprising fluff pulp fibers. The reference in column 23, lines 54 - 56 only teaches the use of polymeric binders to attach superabsorbent particles to southern bleached kraft pulp. There is absolutely no reference to crosslinking cellulose fibers in the presence of polyols and the Whiteness Index values of the instant invention. Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 16 the reference does not teach an absorbent article comprising cellulosic fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol with the fiber properties as cited in Claim 1 and further comprising superabsorbent material. The reference in column 23, lines 54 - 56 only teaches the use of polymeric binders to attach superabsorbent particles to southern bleached kraft pulp. There is absolutely no reference to crosslinking fibers in the presence of polyols and individualized intrafiber crosslinked cellulosic fibers with the Whiteness Index greater than about 69.0.

Withdrawal of the rejection and allowance of the claim is respectfully requested.

With regard to Claim 17 the reference to Figure 10 only illustrates a conventional disposable diaper with a core which is comprised of fibers of the Hansen et al. invention with adhered superabsorbent particulate materials in which the particulate materials may be confined to a target zone, column 44, lines 62- column 45, line 1. In column 6, lines 12 – 29 Hansen et al. state that the product is a cellulosic or synthetic fiber to which superabsorbent particles are adhered by a binder and absorbent products made therefrom. Suitable fibers include wood pulp fibers obtained by the kraft and sulfite processes or from mechanical processes such as ground wood, mechanical, thermomechanical, chemimechanical and chemithermomechanical pulp processes. Pretreated fibers such as those obtained by steam or chemical treatment such as steam or chemical treatment such as crosslinking are also suitable.

Applicants submit that the drawing does not disclose the elements of the instant invention and the specification is silent as to the elements. There is no indication whatsoever that the reference teaches an absorbent article comprising cellulosic fibers reacted with an effective amount of a crosslinking agent in the presence of an effective amount of a C₄-C₁₂ polyol wherein the individualized intrafiber crosslinked cellulosic fibers are characterized by a Whiteness Index greater than about 69.0. Withdrawal of the rejection and allowance of the claim is respectfully requested.

The Rejection of Claim 10 Under U.S.C. § 103a

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the '256 reference.

To establish a *prima facie* case of obviousness there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the

reference teachings, there must be a reasonable expectation of success and the prior art reference or references, when combined must teach all the claim limitations.

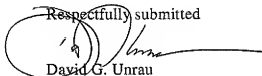
The teachings of Hansen et al. are cited above.

In column 3, lines 42 – 45, Hansen et al. disclose polymeric binders for binding particles to fibers. Applicants submit that these are not C₄-C₁₂ polyols. In column 3, line 62, Hansen et al. disclose non polymeric polyols as binders but does not explicitly disclose sorbitol. The Examiner states that it would be obvious to one of ordinary skill in the art to modify the fiber taught by Hansen et al. such that the polyol added is sorbitol with a reasonable expectation of success. Applicants respectfully disagree. Hansen et al. does not even remotely suggest that his invention will improve the Whiteness Index of the fibers. Hansen et al. depend on binders which have hydrogen bonding and coordinate covalent bonding functionality to bind particles to fibers. Hansen et al. do not crosslink cellulose fibers in the presence of sorbitol to arrive at the instant invention. Even by modifying the fibers taught by Hansen et al. such that sorbitol is added as the polyol one would not arrive at the claimed invention since Hansen et al. do not teach crosslinking cellulose fiber with a crosslinking agent in the presence of a C₄-C₁₂ polyol such as sorbitol to arrive at the claimed invention. Hence there would be no probability of success. Withdrawal of the rejection is respectfully requested.

CONCLUSION

Based on the foregoing, Applicants submit that the application is in condition for allowance and request that it be allowed to proceed accordingly. If the Examiner has any further questions or comments the Examiner is invited to contact the undersigned.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'D. Unrau', is written over the printed name. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

David G. Unrau

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